



Etimine USA, Inc.

Safety Data Sheet

Boric Acid Normal Sulfate Granular

Section 1 - Chemical Product and Company Identification

GHS Name: BORIC ACID

Chemical Name: Boric Acid, Boracic Acid, Ortho Boric Acid

Company Identification:

Manufacturer: ETI MADEN MINES AND PRODUCTS, Turkey

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Etimesgut / ANKARA, TÜRKİYE
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Emergency Number: CHEMTREC 1-800-262-8200/ (703) 741-5500

Section 2 – Hazard Identification

EMERGENCY OVERVIEW

WARNING!

May cause harm to the unborn child and may impair fertility based on animal studies.
Irritating to eyes and skin. May affect central nervous system.

Appearance: White
odor: odorless

Physical State: Crystalline Granular Powder Solid

EMERGENCY OVERVIEW: Boric Acid is a white odorless, powdered substance that is not flammable, combustible, or explosive, and it presents no unusual hazard if involved in a fire. Boric Acid presents little or no hazard (to humans) and has low acute oral and dermal toxicities. Care should be

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taken to minimize the amount of Boric Acid released to the environment to avoid ecological effects.

ROUTES OF EXPOSURE: In the occupational setting, inhalation is the most important route of exposure. Dermal absorption is usually not important because Boric Acid is not absorbed through the intact skin.

INHALATION: Mild irritation to nose and throat may occur when the PEL or TLV are exceeded (see Section 15).

EYE CONTACT: Exposure to Boric Acid dust does not cause eye irritation in normal industrial use.

DERMAL CONTACT: Boric Acid is non-irritating to the intact skin. Can be readily absorbed through broken or abraded skin.

INGESTION: Boric Acid products are not intended for ingestion. Amounts greater than one teaspoonful, when ingested, may cause gastrointestinal problems.

CANCER: Boric Acid is not considered a carcinogen.

REPRODUCTIVE: A human study of occupationally exposed Borate worker population showed no adverse reproductive effects. Animal studies of similar organic Borates demonstrated reproductive effects in males.

TARGET ORGANS: No target organs have been determined in humans. High dose animal ingestion studies indicate that the testes is the target organ.

SIGNS AND SYMPTOMS OF EXPOSURE:

Symptoms of accidental over-exposure to Boric Acid have been associated with ingestion or by absorption through large areas of damaged skin. These may include nausea, vomiting, and diarrhea, with delayed effects of skin redness and peeling. See Section 4 also.

See Section 11 for details on Toxicological Data.

NOTE: See Section 15 for Exposure Limits.

Boric Acid is hazardous under the OSHA Hazard Communication Standard based on animal chronic toxicity studies of similar organic Borates; see Section 11 for details on Toxicological Data.

Hazard Symbols:





Risk Phrases: Risk Phrase(s): **Repro Toxicity Category: 2.**
R60: May impair fertility.
R61: May cause harm to the unborn child.

Hazard Statement:

Signal word (GHS-US) :	Danger
Hazard statements (GHS-US) :	H360 - May damage fertility or the unborn child
Precautionary statements (GHS-US) :	P201 - Obtain special instructions before use P202 - Do not handle until all safety precautions have been read and understood P280 - Wear protective gloves, eye protection P308+P313 - IF exposed or concerned: Get medical advice/attention P405 - Store locked up P501 - Dispose of contents/container to comply with local, state and federal regulations

Section 3 – Product Identification

CAS#	Chemical Name	Formula	Mol. Wt.	Percent	EINECS/ELINCS
10043-35-3	Boric Acid	H3BO3	61.83	>99.9	233-139-2

Section 4 - First Aid Measures**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

CAUTION: Harmful if swallowed or inhaled. Causes moderate eye irritation. Avoid contact with eyes or clothing. Avoid breathing dust. Wash thoroughly with soap and water after handling.
Remove contaminated clothing and wash clothing before reuse.

STATEMENT OF PRACTICAL TREATMENT:

If swallowed: Call a physician or poison control center. Do not induce vomiting.

If Inhaled: Remove victim to fresh air. If not breathing, give artificial respiration, preferably by mouth-to-mouth. Get medical attention.

If in Eyes: Flush eyes with plenty of water. Call a physician if irritation persists.



Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Hazard:	Boric Acid is not flammable, combustible, or explosive. Boric Acid presents no unusual hazards when involved in a fire. This product is an inherent fire retardant.
UEL/LEL:	Not Applicable
Flash Point:	Not Applicable
Auto-ignition:	Not Applicable
Flammability:	Non-flammable solid.
Class:	Flammability Classification (29 CFR 1910.1200)
Extinguishing Media:	Any fire extinguishing media may be used on nearby fires.

NFPA Rating	Health 2	Flammability 0	Reactivity 0	Phys Haz N/A
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Section 6 - Accidental Release Measures

ENVIRONMENTAL HAZARD:

Personal Precautions:	Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.
Environmental Precautions:	Should not be released into the environment.
Methods for Containment and Clean Up	Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

Section 7 - Handling and Storage



[It is a violation of Federal Law to use this product in a manner inconsistent with its labeling]

- Caution:** **Keep out of Reach of Children**
- Hygienic Practices:** Wash hands thoroughly with soap and water after handling, and before eating, drinking, or smoking.
- Storage & Disposal:** Do not contaminate water, food or feed by storage or disposal. Notify local authority and contact your State Water Board or Regional Office of the EPA for guidance.
- Storage:** Store in a cool, dry area away from heat and strong reducing agents.
- Container Disposal:** Completely empty bags into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. Observe all Federal, state and local regulations concerning disposal of waste pesticide and containers.

FORMULATORS AND REPACKAGERS USING THIS PRODUCT ARE RESPONSIBLE FOR OBTAINING ENVIRONMENTAL PROTECTION AGENCY (EPA) REGISTRATION FOR THEIR PRODUCTS. [Refer to PR Notice 95-1 for the applicability of the *Environmental Hazards* statement to your product]

This product is a soluble inorganic powder which may be used for the formulation of products for the following **registered end-use patterns:**

- i. Algaecides for water treatment in swimming pools.
- ii. Bacteriostats for use in impregnating or otherwise applying to absorbent material(s) to inhibit the growth of odor-causing bacteria when applied at a rate of 0.015 to 0.37% w/w (approximately) equivalent boron.
- iii. Insecticides for mop, spot and crack and crevice treatment in homes, residential, industrial, institutional and commercial buildings and in transportation equipment.
- iv. Insecticide/fungicide for wood treatment.

Section 8 - Exposure Controls, Personal Protection

Exposure Guidelines:

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Product	ACGIH TLV	OSHA PEL	NIOSH IDLH
Boric Acid US	TWA 2mg/m³ STEL 6mg/m³	Total Dust: 15mg/m³ Respirable Dust: 5mg/m³	
			TWAEV
Boric Acid Canada			TWA 2mg/m³ STEL 6mg/m³

- Engineering Controls:** Use local exhaust ventilation to keep airborne levels Below exposure limits (see Section 15).
- Eye Protection:** Use goggles or vented safety glasses in excessively dusty conditions.
- Skin Protection:** (Not required under normal conditions.) Use protection if excessively dusty or if skin is damaged.
- Respiratory Protection:** Use appropriate NIOSH/MSHA certified respirators when levels are expected to exceed exposure limits (see Section 15).

Personal Protective Equipment:

- Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
- Skin:** Wear appropriate protective gloves to prevent skin exposure.
- Clothing:** Wear appropriate protective clothing to prevent skin exposure.
- Respirators:** A respiratory protection program that meets OSHA's 29 CFR §1910.134 must be followed whenever workplace conditions warrant a respirator's use.

Section 9 - Physical and Chemical Properties

- Physical State:** Solid
- Appearance:** White Granular Powder
- Odor:** Characteristic Odorless
- Molecular weight:** 61.83
- pH:** Very weak acid. pH ~4 for 4.7g/100ml solution.
- Vapor Pressure:** Not applicable. Not a volatile substance
- Vapor Density:** Not applicable
- Evaporation Rate:** Not applicable
- Viscosity:** Not applicable
- Boiling Point:** Not available



Freezing/Melting Point:	169 deg C
Autoignition Temperature:	Not applicable. Not a flammable substance.
Flash Point:	Not applicable
Solubility:	Soluble in Water, Methanol, Ethylene Glycol, Glycerol. (in water 4.7 wt%@20C; 27.5 wt%@100C)
Specific Gravity/Density:	1.51g/cm3
Bulk Density:	57-65 Lb/Cft

Section 10 - Stability and Reactivity

Chemical Stability:	Stable under normal storage and handling conditions; forms partial hydrate in moist air. When heated, water is lost forming Metaboric Acid (HBO ₂). On further heating, the material is converted to boric oxide (B ₂ O ₃).
Conditions to Avoid:	Incompatible materials, dust generation, heat.
Incompatible Materials:	Boric Acid reacts as a weak acid that may cause corrosion of base metals. Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas that could create an explosive hazard.
Hazardous Decomposition:	Not known.
Hazardous Polymerization:	Will not occur.

Section 11 - Toxicological Information

Product	LD50 Oral	LD50 Dermal	LC50 Inhale(dust)
Boric Acid	3500-4100 mg/kg Rat	2000mg/kg Rabbit	>2.03 mg/L Rat 4h

EYES:	Long occupational exposure history indicates no human eye injury from exposure to Boric Acid.
SKIN:	Low acute dermal toxicity; LD50 for rabbits is expected to be greater than 2,000 mg/kg of body weight (test



conducted per 16 CFR 1500.41). Boric Acid is not absorbed through intact skin.

INHALATION:

Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposure to Boric Acid and Sodium Borate dust (See Section 4 also).

INGESTION:

Low acute oral toxicity; LD50 for Sprague-Dawley rats is 3,500 to 4,100 mg/kg of body weight. (See Section 4).

CARCINOGENICITY:

Boric Acid is not listed as a carcinogen by the Environmental Protection Agency (EPA), the State of California, or the International Agency for Research on Cancer (IARC). A report issued by the National Toxicology Program showed "no evidence of carcinogenicity" from a full two-year bioassay on Boric Acid on mice at feed doses of 2,500 to 5,000 ppm in the diet. No mutagenic activity was observed for Boric Acid in a recent battery of four short-term mutagenicity assays.

REPRODUCTIVE:

A human study of occupationally exposed Borate worker population showed no adverse reproductive effects. Animal studies indicate that Boric Acid reduces or inhibits sperm production, causes testicular atrophy, and, when given to pregnant animals during gestation, may cause developmental changes. These feed studies were conducted under chronic exposure conditions leading to doses many times in excess of those that could occur through inhalation of dust in the occupational setting.

Teratogenicity:

No information available.

Reproductive Effects:

No information available.

Neurotoxicity:

No information available.

Mutagenicity:

No information available.

Other Studies:

See actual entry in RTECS for complete information.

Section 12 - Ecological Information

NOTE: Boron is the element in Boric Acid that is used to characterize Borate product ecological effects. To convert Boric Acid to boron multiply by 0.1748.



FISH TOXICITY:

Boron naturally occurs in seawater at an average concentration of 5 mg B/liter. In laboratory studies the acute toxicity (96-hr LC50) for under-yearling Coho salmon (*Onchorhynchus kisutch*) in seawater was determined as 40 mg B/L (added as Sodium Metaborate). The Minimum Lethal Dose for minnows exposed to Boric Acid at 20C for 6 hours is 18,000 to 19,000 mg/l in distilled water, 19,000 to 19,500 in hard water.

Rainbow trout:	24-day LC50 = 150.0 mg/B/L 36-day NOEC-LOEC = 0.75-1 mg/B/L
Goldfish:	7-day NOEC-LOEC = 26.50 mg/B/L 3-day LC50 = 178 mg/B/L

BIRD TOXICITY:

Dietary levels of 100 mg/kg resulted in reduced growth of female mallards. As little as 30 mg/kg fed to mallard adults adversely affected the growth rate of offspring.

INVERTEBRATE TOXICITY: Daphnids 48-hour LC50 = 133 mg/B/L
1-day NOEC-LOEC = 6-13 mg/B/L

PHYTOTOXICITY:

Although boron is an essential micro-nutrient for healthy growth of plants, it can be harmful to boron-sensitive plants in higher quantities. Plants and trees can easily be exposed by root absorption to toxic levels of boron in the form of water-soluble Borate leached into nearby waters or soil. Care should be taken to minimize the amount of boron released to the environment.

ENVIRONMENTAL FATE DATA:

Persistence/Degradation: Boron is naturally occurring and is commonly found in the environment. Boric Acid decomposes in the environment to natural Borate.

Soil Mobility: The product is soluble in water and is leachable through normal soil.

Section 13 - Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Disposal of container and unused contents must be carried out in accordance with the federal, state and local requirements.



Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

Section 14 - Transport Information

Boric Acid is not classified as Hazardous substance for transport. It is not regulated by

US DOT: Unregulated

Canada TDG: As per WHIMS Class D2A



Section 15 - Regulatory Information

US Regulations:

TSCA:	CAS# 10043-35-3 is listed on the TSCA inventory.
RCRA (40CFR 261):	None listed under any section.
CERCLA (SUPERFUND):	None listed under any section.
Health & Safety Reporting List:	Not on the Health & Safety Reporting List.

Chemical Test Rules:	Not under a Chemical Test Rule.
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TSCA 12(b)	Chemical Weapons Convention: TSCA 12(b): No
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CDTA:	No
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SARA 311/312:	Acute: Yes Chronic: Yes Fire: No Pressure: No Reactivity: No (Mixture / Solid)
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TSCA Significant New Use Rule: Not a SNUR under TSCA.

SARA Section 302 (RQ):	None of the chemicals in this material have an RQ.
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Section 302 (TPQ):	None of the chemicals in this product have a TPQ.
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SARA Codes:	CAS # 10043-35-3: chronic.
Section 313	No chemicals are reportable under Section 313.
Clean Air Act:	This material does not contain any hazardous air



pollutants. This material does not contain any Class 1 Ozone depletery substance. This material does not contain any Class 2 Ozone depletery substance.

Clean Water Act:

Boric Acid is not regulated by any water quality criteria under Section 304, is not listed as priority pollutant under Section 307, and is not listed as a hazardous substance under Section 311.

SAFE DRINKING WATER ACT:

Not regulated under SDWA, 42 USC 300g-1, 40 CFR 141 et seq. Consult state and local regulations for possible water quality advisories involving boron.

OCCUPATIONAL EXPOSURE LIMITS: Boric Acid is listed/regulated by OSHA, CAL OSHA, or ACGIH as "Particulate Not Otherwise Classified" or "Nuisance Dust".

OSHA:

Permissible Exposure Limit: 15mg/m³, total dust
5 mg/m³, respirable dust

ACGIH:

Threshold Limit Value: 2 mg/m³.

CALIFORNIA OSHA:

Permissible Exposure Limit: 5 mg/m³

STATE:

CAS# 10043-35-3 can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
California No Significant Risk Level: None of the chemicals in this product are listed.

Other Regulations:

Canada:

CAS#10043-35-3 is listed on Canada's DSL List.
This product has a WHMIS classification of D2A.
CAS#10043-35-3 is listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS#10043-35-3 :

OEL-AUSTRALIA: TWA 5 mg/m³
OEL-BELGIUM: TWA 5 mg/m³
OEL-DENMARK: TWA 5 mg/m³
OEL-FRANCE: TWA 5 mg/m³
OEL-THE NETHERLANDS: TWA 5 mg/m³
OEL-SWEDEN: TWA 2 mg/m³; STEL 5mg/m³; Skin
OEL-SWITZERLAND: TWA 5 mg/m³
OEL-UNITED KINGDOM: TWA 5 mg/m³
OEL IN BULGARIA, COLOMBIA, KOREA,



NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV

INTERNATIONAL AGENCY for CANCER RESEARCH: Not listed as a carcinogen.
NTP ANNUAL REPORT ON CARCINOGENS: Not listed as a carcinogen.
OSHA CARCINOGEN: Not listed as an OSHA carcinogen.

CONEG MODEL LEGISLATION: Meets all CONEG requirements relating to heavy metal limitations on components of packaging materials.

CALIFORNIA PROPOSITION 65: Not listed as carcinogen or reproductive toxin.

FEDERAL DRUG AGENCY (FDA): Pursuant to 21 CFR 175.105, 176.180, and 181.30, Boric Acid (non-pesticide) is approved by the FDA for use in adhesive components of packaging materials, as a component of paper coatings on such materials, or for use in the manufacture thereof, which materials are expected to come in contact with dry food products.

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEMS (WHMIS):
Boric Acid is regulated as a Controlled Product and is classified as D2A because of possible reproductive toxicity.

FIFRA: This product is a **PESTICIDE**

Section 16 - Additional Information

OTHER INFORMATION:

Label Hazard Warning:

- May be harmful if swallowed.
- May cause reproductive harm or birth defects based on animal data.
- Avoid contamination of food or feed.
- Not for food or drug use
- Practice good housekeeping.
- Refer to all sections of this MSDS.
- KEEP OUT OF THE REACH OF CHILDREN.

National Fire Protection Association (NFPA) Classification:

4 = Severe, 3 = Serious, 2 = Moderate, 1 = Slight, 0 = Minimal

Health 2
Flammability 0
Reactivity 0

Hazardous Materials Information Systems (HMIS):

4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Insignificant

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Blue: (Acute Health) 2*

Red: (Flammability) 0

Yellow: (Reactivity) 0

* Chronic Effects (for explanation see Section 11)

Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

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